MSHA Handbook Series

U.S. Department of Labor
Mine Safety and Health Administration
Coal Mine Safety and Health
Metal and Nonmetal Mine Safety and Health

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Investigation of Mining Accidents

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INTRODUCTION

Authority

The Federal Mine Safety and Health Act of 1977, Public Law 91-173, as amended by Public Law 95-164, requires that authorized representatives of the Secretary of Labor make investigations in coal and other mines for the purpose of obtaining, utilizing, and disseminating information relating to the causes of accidents.

Purpose

This handbook has been developed to provide guidance for the preparation and handling of MSHA investigations of accidents and other occurrences involving health and safety in coal mines and in metal and nonmetal mines pursuant to the Federal Mine Safety and Health Act of 1977; to provide for the compilation and dissemination of factual information regarding investigation findings to all interested parties so that preventive measures may be established where applicable; to provide necessary legal documentation; to provide information for use in formulating new health and safety standards; and to provide permanent records.

Responsibility

In the event of an accident occurring in a coal or metal and nonmetal mine, an authorized representative, when present, may issue such orders as he or she deems appropriate to insure the safety of any person in the mine. In the event of any accident occurring in a mine where rescue and recovery work is necessary, the Secretary or an authorized representative shall take whatever action considered necessary to protect the life of any person in the mine or to preserve the accident site and may, if deemed appropriate, supervise and direct the rescue and recovery activities in such mine. This type action by MSHA investigators is addressed further in the handbook section on 103(j) and 103(k) orders.

Authority to Issue Statement

Unless there is an official MSHA press officer present, the senior MSHA official at the scene of a mine investigation and at any related hearings is authorized to issue statements relative to the investigation. He or she may also refer questions from the press to the Office of Information and Public Affairs (OIPA) in Arlington, Virginia, at (FTS/703) 235-1452. The Director of OIPA is authorized to issue statements of fact to the press, either jointly with the State authorities if they concur, or

independently if they object. MSHA officials at the accident scene must ensure that OIPA is adequately informed of and kept up-to-date on the progress of the investigation. Where appropriate, the team leader may request that a MSHA press officer be assigned to the investigation.

RESPONSIBILITIES

Notification of Accidents

If an accident, as defined in 30 CFR 50.2(h), occurs, the operator shall immediately contact the MSHA District or Subdistrict Office having jurisdiction over the mine. If the operator cannot contact the appropriate MSHA District or Subdistrict Office, then the MSHA Headquarters Office in Washington, D.C., shall be immediately contacted by telephone, at (800) 746-1553, a 24-hour toll free number.

Accidents Requiring Notification of Headquarters

Upon learning of a mine accident or of the occurrence of any of the following categories, the District shall immediately notify Headquarters by the fastest means available. The emphasis here is that Headquarters is notified that an accident has occurred, even though only limited information is available.

1. A death of an individual at a mine or an injury to an individual at a mine which has a reasonable potential to cause death;

2. An unplanned mine fire not extinguished within 30 minutes of discovery;

3. An unplanned ignition or explosion of gas or dust;

4. An unplanned inundation of a mine by a liquid or gas;

5. An entrapment of any person(s) for more than 30 minutes or any other accident requiring mine rescue and recovery; and

6. Any physical event at a mine which causes death or bodily injury to an individual not at the mine at the time the event occurred (e.g., rock displaced by blasting which injures a person not on mine property).

Preliminary Report

The Districts will have 72 hours in which to provide all necessary data for the Preliminary Report of Accident (MSHA Form 7000-13 revised), which is required for all reportable accidents or occurrences. This data is to be submitted via telecopier at (703) 235-1517 for CMS&H and at (703) 235-9173 for M&NM; or phoned to the Management Office at (703) 235-1550 for CMS&H or (703) 235-8480 for M&NM.

When gathering preliminary information relative to the investigation, any equipment involved in the accident must be identified. The manufacturer and model of the equipment is to be included on MSHA Form 7000-13.

Instructions for completion of the Preliminary Report of Accident are listed below. If not specifically mentioned, the items are self-explanatory.

1. Accident Type: Mark if fatal, non-fatal, or non-injury.

2. Accident Classification: Enter classification as: entrapment; inundation; gas or dust ignition; mine fire; explosives; roof fall; electrical; haulage; machinery; outburst; impounding dam; hoisting; or off-site injury.

5. Fatal Case Number: **Completed at Headquarters.**

6. a. Mining Company Name: Enter name of company operating mine.

   b. Mine Name: Enter name of mine.

   c. Parent of Mining Company: Enter name of company if not the same as the operator.

7. Mine Location: Enter the town, county, and state where the mine is located.

10. Primary Mineral Mined: Enter coal; potash; gravel; anthracite; lignite; etc.

13. Union: Enter name of union with which contractor is affiliated.

14. Contractor ID Number: If a contractor employee was injured in the accident, enter contractor ID number.

15. Contractor Address: Enter city, county, and state of contractor. Address should include mailing address, not just city and state.

16. Number of Contractor Employees: At the mine site.

23. Victim Information: e. State the activity of the victim at the time of the accident.

24. Experience: d. State experience with contractor.

26. Next of Kin: Enter the name of spouse and number of dependent children. If not married, enter the next of kin (parents, uncle, aunt, etc.). **Note: Put next of kin address and phone number on separate sheet of paper when submitted to headquarters.**

27. a. Notifying Mine Person: Enter name of person that reported accident to MSHA.

27. b. Telephone Number: Enter phone number of person reporting accident to MSHA.

28. Description of Accident: Enter brief summary of how and why the accident occurred, i.e., ignition occurred during mining; cutting; welding; smoking material; etc.

29. Equipment Manufacturer: Enter name of manufacturer of equipment involved in the accident.

30. Model: Enter model number of equipment, i.e., 21SC shuttle car, model of roof bolter, etc.

33. Field Office: Enter the MSHA field office that has responsibility for inspecting the mine in which the accident occurred.

34. Event Number: The event number will be used for tracking purposes.

35. Accident Investigator: Person in charge of conducting the investigation.

36. a. MSHA Person Notified: Person who received initial report of the accident.

37. a. Initial Report: Enter date accident was initially reported to MSHA.

38. a. Signature: Signature of MSHA official.

In addition to transmitting the required information to Headquarters, the District shall immediately take whatever action is deemed necessary to protect the lives of any person, pending instruction from the Administrator. Such actions may include, but are not limited to, dispatching available rescue and fire-fighting personnel and equipment to the mine. It is recognized that time is a vital factor in many emergency situations, and under no circumstances shall the District await instructions to initiate actions that are necessary to protect lives.

In evaluating the personnel and equipment available in an emergency, the District shall consider the availability of such resources at other MSHA offices, at State and local agencies, and at companies in the vicinity, and it shall call upon them for whatever assistance may be needed. In addition, the services, personnel, and facilities of any Federal agency may be requested.

When gathering preliminary information relative to the investigation, any equipment involved in the accident must be identified. The manufacturer and model of the equipment is to be included on MSHA Form 7000-13. In addition, upon determining that the design of a piece of equipment possibly contributed to the accident, a memorandum detailing the equipment involved and the manner of involvement shall be prepared and submitted to the appropriate Administrator with a copy sent to the Director of Technical Support.

Accidents Not Requiring Notification of Headquarters

Upon learning of an accident that is not in a category requiring notification of Headquarters, the District shall determine whether or not the circumstances warrant an investigation. If it is determined that an investigation is to be made, the operator of the mine shall be promptly notified of the approximate date and time of such investigation and shall be instructed to take appropriate measures to preserve any evidence that might assist in determining the cause or causes of the accident. The investigation procedures described in this Handbook shall be used as guidance by the District in the investigation of accidents not required to be reported to Headquarters.

The fact that there are certain types of accidents that need not be immediately reported to MSHA Headquarters does not in any way relieve the mine operator from notifying MSHA immediately of all accidents defined in 30 CFR 50.2(h).

Administrators

Accidents involving three or more fatals are the investigative responsibility of the Administrator of either Coal or Metal/ Nonmetal. Upon notification that an accident resulting in three or more fatalities has occurred at a mine, the District Manager will immediately: 1) direct the local office to secure the accident site at the mine and begin preparations to provide logistic support for an accident investigation team; and 2) prepare a preliminary summary of the fatal accident for the Administrator. The Administrator will appoint the team leader and, when needed, assemble a specially trained accident investigation team, which may include an attorney from the Division of Mine Safety and Health of the Solicitor's Office. In most cases, the team members will come from outside the District where the accident occurred.

It is also the responsibility of the Administrator to notify other agencies and/or officials in accordance with established procedures, when appropriate.

District Managers

Accidents involving less than three fatalities are the investigative responsibility of the District Manager. Upon notification that an accident resulting in one or two fatalities has occurred at a mine, the District Manager will immediately: 1) direct the local office to secure the accident site at the mine and begin preparations to provide logistic support for an accident investigation team; and 2) prepare a preliminary summary of the fatal accident for the Administrator. The District Manager will appoint the team leader and, when needed, assemble a specially trained accident investigation team of personnel from within the District. The team may also include an attorney from the Solicitor's Office.

Technical Support

The Director of Technical Support maintains and assures the availability of rescue rigs, communication equipment, supporting mine emergency services, personnel, and other equipment in readiness for rapid mobilization. He or she shall also mobilize and deploy such equipment, services, and personnel to the scene when notified to do so by the Administrator. The Director shall also supply additional technical support services as required in the rescue and recovery operations.

The mine emergency operations are under the immediate direction of the Director of Technical Support and, in part, they exist through contracts with: Westinghouse - seismic locators and communications; and the Department of Defense - airlift capabilities. Westinghouse will respond to a mine emergency upon notification by the Director of Technical Support or by the Administrator(s) or Deputy Administrator(s) for Coal or Metal and Nonmetal Mine Safety and Health.

The Office of Technical Support maintains a multi-disciplined engineering and scientific staff that can be made available to assist in accident investigations. Laboratory facilities are available to be utilized for chemical, metallurgical, or other analytical work related to the failure of equipment or material or the existence of any environmental concern.

JURISDICTION AND CHARGEABILITY

General

The responsibility for resolving questions of jurisdiction and chargeability rests with Agency officials who are not normally present at the accident site. It is imperative, therefore, that on-site investigators confronted with questions of jurisdiction and/or chargeability, gather all pertinent data and relay it promptly through appropriate channels to the District Manager.

The preliminary data for all fatal accidents must be forwarded immediately to the Headquarters Office, regardless of whether or not questions of jurisdiction or chargeability exist. If the fatal accident is ultimately determined to be outside of MSHA jurisdiction or not chargeable to the mining industry, the Headquarters copy of MSHA Form 7000-13, Preliminary Report of Accident, will indicate that conclusion with the appropriate notation. If jurisdiction or chargeability is affirmed, a fatal case number will be assigned and all pertinent data recorded.

Jurisdiction

Questions of jurisdiction may arise during the initial notification of an accident to MSHA or upon arrival of the accident investigators at the site. If there is uncertainty regarding jurisdiction, the Agency representative must gather all related information and relay it to the District Manager. If uncertainty remains, the District Manager should consult with the Administrator and the Office of the Solicitor. The primary concerns in this determination are: 1) the specific location of the accident in relation to the boundaries of the mine property;

and 2) where mill accidents are concerned, details of the milling process involved.

If MSHA jurisdiction is affirmed, the accident investigators must be notified immediately and the investigation begun. If the District Manager determines that the accident has occurred in the jurisdictional area of another agency, the other agency must be notified promptly and all accident related data transferred to that agency. The District Office must then terminate the accident investigation and advise the Headquarters Office so that any preliminary accident data that may already have been submitted can be removed from further consideration.

Note that MSHA has concurrent jurisdiction with OSHA in some situations. Where clarification is necessary, the District Manager should consult with the Administrator.

Chargeability

The District Manager shall be responsible for making determinations as to whether a fatality occurring in the district is to be counted as a reportable death in MSHA's official statistics. All decisions by the District Manager shall be reviewed by the Administrator. The District Manager or the Administrator may refer particular cases to the Fatality Review Committee for decision. Decisions by the Administrator or the Fatality Review Committee shall be final, subject to review by the Assistant Secretary. If the death is determined to be chargeable to the mining industry, a fatal investigation report shall be prepared.

If a District Manager is reasonably certain that a death at a mine is the result of natural causes, the investigation to gather information for a chargeability determination may be conducted by immediately available personnel. In such cases, it will be appropriate to assign the investigation to local field personnel who may regularly be involved in inspection activities at the mine.

When there is reason to question whether an accident is chargeable to the mining industry, the accident investigator shall immediately gather all available related information and relay it to the District Manager. Additional chargeability information which becomes available during conduct of the accident investigation shall also be forwarded promptly so that the chargeability determination can be based on all available facts.

If there is reason to believe that a fatality is the result of natural causes or any other reason which should not be charged to the mining industry, a memorandum report requesting a chargeability determination shall be submitted to the Administrator within 30 working days of the date of the fatality. The accident investigation should continue while the issue of chargeability is being considered. This will help aid the preservation of information and evidence and may assist in determining chargeability. The memorandum report must describe in detail the activities of the victim prior to the time of death and any related information which addresses chargeability. For cases involving natural causes of death, supporting documents must include a copy of the death certificate and, if possible, the autopsy report, the coroner's jury report, or the statement of an attending physician. In addition, any information that clarifies physical stress, prior medical history or medication should be included in the report. If a copy of the autopsy report is not available when the memorandum report is due, it may be forwarded at a later date. Refer to the Appendix for suggested memorandum report format.

SECTION 103(j) AND 103(k) ORDERS

During the investigation of most accidents, a Section 103(k) order is usually the appropriate type of order to use, even though rescue and recovery operations are underway. The issuance of either a 103(j) or 103(k) order does not prohibit the issuance of appropriate citations and orders under Sections 104 or 107 of the Mine Act.

Section 103(j) Orders

In the event of a mine accident where rescue and recovery work is necessary, Section 103(j) grants the investigator broad authority to take whatever action, including the issuance of orders, deemed appropriate to protect the life of any person. Where appropriate, the investigator may supervise and direct the rescue and recovery activity. Normally, however, the inspector will not utilize his/her powers under Section 103(j), but will instead utilize Section 103(k). Because of this broad authority, the inspector must exercise discretion and good judgement. Immediately upon arrival at the accident site, or later as the rescue operations develop, the investigator may determine that taking direct control, either entirely or partially, is necessary. An example of this type of situation would be when the investigator considers that a less hazardous rescue procedure is desirable instead of the procedure intended for use by the operator. The paramount consideration is the protection of the

life of any person while rescue and recovery operations are underway.

It will not be possible, nor is it intended, that the 103(j) order be used for all orders and directives. A primary purpose of the 103(j) order is to prevent additional injuries when it becomes obvious that unsafe procedures are being followed to recover miners or the mine. When possible, the investigator should contact his or her District or Subdistrict Manager or the Administrator, whoever is appropriate, prior to issuing a 103(j) order of withdrawal.

Notwithstanding the above, when an investigator is present at a mine following an accident, he or she may determine that immediate rescue and recovery work is necessary. In such a situation, a 103(j) order would generally be appropriate, if necessary to achieve the desired actions.

Section 103(k) Orders

Generally, the investigator will utilize Section 103(k) instead of 103(j) to insure the safety of all persons in the mine. This is true even though the recovery of persons may already be in progress at the time the 103(k) order is issued.

The issuance of a Section 103(k) order is to be distinguished from an order issued under Section 104 or 107 of the Mine Act. The orders have different statutory bases and criteria, and should be considered independently. Section 107(a) contains an exception to the withdrawal of persons described in Section 104(c) that is not found in Section 103(k). There may be circumstances where even those persons described in Section 104(c) should be prohibited from entering an area of the mine. Also, if the investigator determines that an imminent danger exists, a Section 107(a) order should be issued forthwith, regardless of any other orders that may have been issued.

INVESTIGATIONS

Purpose of Investigation

The purpose of an accident investigation is to determine how and why an accident occurred in order that remedial actions may be taken to prevent a recurrence in the same or another mine. To fulfill this purpose, it is necessary to determine pertinent physical conditions in the mine and any personal acts that led to the occurrence. Although it is not a function of the investigating team to ultimately determine if willful or knowing

violations occurred, the investigation must identify any person who performed an unsafe act and any person who failed to take reasonable preventive or precautionary actions, especially if the actions were in violation of the Mine Act or safety and health standards.

Investigation Procedures

The Administrator shall consult and coordinate with the Associate Solicitor for Mine Safety and Health whenever it is determined that formal investigation procedures are appropriate. As noted, the Associate Solicitor for Mine Safety and Health, or his or her designees, may assist and/or be part of the investigation team.

Investigation Team

When investigating fatal accidents, the investigation team shall have a team leader who has been thoroughly trained in accident investigation techniques and procedures. Other team members will be technical specialists, engineers, supervisors, and/or inspectors as needed and may also include an attorney. As a general rule, neither the team leader nor the team members should be responsible for inspections or plan approvals at the mine where the fatal accident occurred. However, they may be used in an advisory capacity regarding conditions at the mine. The designated team leader shall assign each member of the team definite areas of responsibility; however, the team leader may modify these assignments as may be necessary in the course of the investigation. These procedures shall also be followed when an accident results in injuries that have the potential of resulting in a fatality.

Cases involving natural death and all other accident investigations shall be conducted by trained and experienced personnel assigned at the discretion of the District Manager or Administrator, as appropriate.

Involvement of a Special Investigator

A special investigator may be assigned to accompany any accident investigation team. His or her responsibilities would be to observe all pertinent conditions and to review all statements in order to determine whether further investigation should be conducted with regard to criminal or civil liability under Section 110 of the Mine Act. However, the accident investigation team leader has been trained in the proper procedures for the collection and preservation of evidence and for establishing a chain of custody and will notify the District Manager when

conditions are found that indicate the possible need for a special investigation. The District Manager will then have the appropriate special investigation initiated. Also, where a special investigator is assigned as a member of an accident investigation team, he or she is to be available for any assignments from the team leader that are necessary for the timely completion of the accident investigation.

Organization and Planning

A. General

The successful accomplishment of an accident investigation will depend upon how well it is planned, organized and conducted. The investigation team leader is responsible for organizing and directing the efforts of the investigation team to ensure that the investigation is thorough and completed in a timely manner.

B. Investigation Plan

The investigation plan is a systematic procedure which will ensure a continuity of effort from the preliminary examination of the accident site to the submission of the final report. This phase provides the opportunity for the investigation team leader to organize the team for the investigation. This should be accomplished in a team meeting before departing for the accident site. This meeting should ensure that each team member knows the area of the investigation he or she is responsible for, the initial task needed to be accomplished, and the data elements that will need to be collected to complete the report. The investigation team should also be briefed by local MSHA personnel on the status of any preliminary actions.

C. Orientation

The team members shall obtain as much relevant information as possible from MSHA records before beginning the investigation. This information will then be verified, modified, and expanded based on records and other information at the mine to develop a full understanding of the situation.

A meeting of all interested parties to the investigation, including representatives of the miners and the operator, should be held in much the same manner as a pre-inspection conference. This meeting should be held as soon as possible after the investigation team arrives at the mining operation.

D. Technical Part of Investigation

1. **General**: The team members, individually or collectively, shall investigate and observe all conditions and practices relevant to the occurrence under investigation. Detailed records shall be maintained of all observations and information obtained to document the investigation.

With the witness' account of the accident, and/or with other acquired information, and in connection with a visual inspection of the accident scene, a conception of the cause of the accident should become apparent. Investigators should not accept as final the immediate and apparent cause of the accident without giving full consideration to related or underlying conditions, practices, or circumstances. They must find out what happened initially, regardless of the time element, to trigger an action that would result in an accident.

The investigation shall produce enough facts and information to answer several crucial questions necessary to prepare an accurate report.

If investigators are to generate an accurate picture of the incident, they must know what happened, when and where it happened, and who was involved. They must also have knowledge of how and why the incident occurred so that they will be able to make necessary recommendations. Finally, they have to catalog what actions were taken immediately after the accident, but prior to the investigators' arrival, and note what actions were proposed and recommended to relieve the hazardous conditions and to prevent their recurrence.

2. **Accident Site**: Although preliminary information would normally already have been obtained and reviewed, the accident investigation really does not get underway until the investigation team has observed the accident scene. It is here that both material and human factors may first become apparent, and the team gets an overview of the accident.

The goals of the investigation team should include determining how and why the accident and resulting injuries occurred. The investigators will observe any conditions, locations, and/or equipment pertinent to the accident, and they will mentally begin the process of reconstructing the sequence of events that occurred during the accident.

A scaled drawing should be made detailing all of the pertinent features of the accident. Photographs should be used also, if conditions allow for good clear pictures. A compass direction should be plotted, if relevant, and if it is to be used in the

text of the report. All dimensions and distances necessary in clarifying the accident should be plotted on the sketch. Measurements can be approximations, unless a finer tolerance is a key factor in the accident. All physical evidence at the accident site that may be relevant to the cause of the accident shall be documented. It is recommended that the Accident Data Sheets for the various accident classifications be utilized to aid investigators in conducting accident investigations. These Accident Data Sheets have been distributed to all districts.

3. **Company Records**: A copy of the operator's accident investigation report, as required by 30 CFR 50.11(b), should be obtained as soon as it is available. This report should be entered in the accident investigation file. A copy of the Data Sheet, Form 2000-58, is to be submitted with each Accident Investigation Report. (Refer to Appendix for example.) One form will be completed for each victim or principal person involved in an accident even though no injury occurs. These forms will be part of the Accident Investigation Report. The employee's records should be used to determine the date the victim was hired at the mine. This, along with the accident victim's total mining experience, will be used to determine what training was required by 30 CFR Part 48.

MSHA Form 5000-23 (Certificate of Training required by Section 48.9 and 48.29) should be used to determine what training was actually received and the date the training was done. The Certificate of Training is required to be maintained at the mine site for two years after the training was received. All employees subject to Part 48 training are required to receive refresher training annually. Annual retraining of eight hours is to be received within a 12-month period.

The company's records should be used to determine other training programs completed in addition to the training data already recorded. Examples of this training are welder training, supervisory training, maintenance training, etc.

The investigation team should determine from MSHA Form 5000-23, or by interview, if the victim had received training or

instructions related to the task being performed at the time of the accident. If training was received, find out the time given, the name of the instructor and the training method used. Based on evidence gathered during the accident investigation, a determination should be made on whether or not the training appears to have been adequate. If additional or better training might have prevented the accident, indicate that a training program evaluation should be conducted. Where additional training is needed, notify the appropriate District Manager that an evaluation of the effectiveness of the training program should be performed.

4a. **Witness Statements:** The witness interview is an extremely important part of the accident investigation. (Refer to the appendix entitled Interviewing Techniques.)

Because observations can be distorted with time and because conditions can change, all witnesses to the accident should be interviewed as soon as possible. After the accident scene has been viewed, the witnesses and other parties should be interviewed individually. Each person should be interviewed separately to obtain his or her personal recollection of the relevant events and circumstances.

The team leader shall determine the appropriate procedures for conducting witness interviews. The team leader must decide:

1. whether it is necessary to subpoena witnesses to guarantee their attendance;

2. whether to permit the company and representatives of the miners to be present during the interviews;

3. the degree of participation of the representative of the state mining agency;

4. ground rules for questioning by parties other than MSHA;

5. the method for recording the interview proceedings (e.g., tape recorder, stenographic reporter, etc.); and

6. the location of the interview sessions.

The procedures employed will depend upon the circumstances of each accident investigation, and the decisions will be made by the team leader at the scene. Factors to be considered in

determining whether witnesses must be subpoenaed include the willingness of witnesses to make themselves available for interviews and the likelihood that witnesses will answer the questions asked.

MSHA's philosophy is to conduct its investigations in an independent professional manner, the sole purpose being to thoroughly examine the circumstances, determine the causes, and disseminate information for the prevention of future such accidents. Accordingly, MSHA will conduct its investigations to ensure, to its best ability, that the information gathered is complete and accurate.

In most cases, witness interviews conducted with the participation of the mine operator, the representative of the miners, and the state inspection agency result in the most complete investigation. Each of these parties can bring a unique viewpoint to the investigation and enhance the quality of the investigation. The participation of one or more of these parties during witness interviews may be limited, however, when necessary to further the effectiveness of the investigation. Additionally, the attendance of other persons, including representatives of the media or other groups not directly involved in the investigatory process may also be restricted. Factors that the team leader should consider in determining those persons who may be denied attendance are:

1. public statements or disclosures from participants that may compromise the integrity of the investigation;

2. behavior during interviews that could interfere with the effectiveness of the interview process;

3. otherwise creating an atmosphere not conducive to MSHA's carrying out its investigatory responsibilities;

4. indications of a disruptive attitude as evidenced during the physical inspection; and

5. requests by the witness for a private interview.

The existence of one or more of the above factors can be cause to conduct witness interviews in private, normally in cooperation with the state. In all instances, however, each witness will be afforded the opportunity to be accompanied by a personal representative of his or her choosing.

When present, the company and the miners' representatives will be permitted to ask clarifying questions. Such questions are follow-up questions to expand more fully the information from MSHA's questions, or to clear up potential misunderstandings of statements by the witness. If the company or miners' representatives desire that new areas of questioning be opened up, they must submit the question to the team leader who will then decide whether to ask the question.

An agency of the state in which the accident occurred will often conduct its own investigation of the accident. MSHA will cooperate with the authorized representatives of that organization in the investigation of the accident, recognizing the authority and responsibility of the State. However, MSHA has the responsibility to conduct an independent investigation and cannot jeopardize its charge in this cooperative effort. If a conflict of purpose occurs, MSHA will conduct its investigation independent of the state.

Unless a stenographic reporter is taking the witness statement, a record of the interview should be made by clear factual notes or tape recorded. If necessary, witnesses may be taken back to the accident site so that details of the accident can be more thoroughly addressed during the interview. (Refer to appendix for sample Interview Record.)

The number of investigators that actually question witnesses during the interview is discretionary. More than two or three investigators asking questions, however, could intimidate some witnesses. One investigator should conduct the interview and maintain eye contact with the witness. Another investigator can monitor the tape recorder, if used, or take notes. Also, areas for further questioning should be noted. When the first or lead investigator has completed his or her questioning about a particular area or subject, he or she should then allow the other team members to continue with further questions, if necessary, to follow up and clarify or fill in more completely information from the lead investigator's questions.

MSHA has found that tape recorders may not result in a reliable transcript of the questions and answers. Stenographic reporters are therefore necessary when the total interview process is in private to eliminate any questions relating to the accuracy of the record of the proceeding. Stenographic reporters are also suggested when the accident is of a complex nature.

Copies of witness statements shall be included in the official accident investigation file and shall be made available to the

public at the close of the investigation, unless a witness has requested confidentiality. The team leader may, in the public interest, release copies of statements prior to the close of the investigation if it will not impede the remainder of the investigation. However, release of confidential statements is not authorized without the express approval of the Office of the Solicitor.

4b. **Information From Other Sources:** MSHA will conduct its investigation to ensure that information and statements gathered represent, to its best ability, what occurred. MSHA issues orders to control access to the scene of the accident to keep the area from being disturbed prior to its on-site investigation. MSHA will accept information from any source, and is able to do so in public or confidential arrangements. Information obtained by others will be considered on its merits but may not be given the same weight or consideration as information gathered by MSHA's own investigators.

5. **Human Factors**: An evaluation of the actions or inactions of personnel involved in the accident must be made to determine compliance with applicable regulations, standard operating procedures, or what is generally accepted as common practice. Any and all actions relevant to the accident must be documented so that a chronology of the events which occurred before, during and, where appropriate, after the accident, can be developed.

6. **Environmental Factors**: The investigation should include an evaluation of environmental factors that may have played a part in the accident. Assess environmental/weather conditions as possible cause factors. An element or condition such as precipitation, temperature, wind, lightning, or methane, float coal dust, or standing water, may affect the control of equipment, reduce visibility, or result in undetected hazards. Elements or conditions known to exist can be contributing factors when avoiding them is beyond the capability of the personnel involved. However, an element or condition must not be considered a factor just because it exists - this must be verified. Other environmental conditions such as contaminants, noise, artificial illumination, radiation, and the adequacy of the work surface or space, should also be assessed for their possible influence on personnel or equipment involved in the accident.

7. **Material Factors**: An important aspect of many accident investigations is an evaluation of the material factors involved. Material (e.g., equipment or components, structures, etc.) failures/malfunctions which may have impaired the operational

capabilities of a vehicle or piece of machinery or contributed to a structural failure must be assessed. The causes of material failures/malfunctions must be identified. Vehicle, equipment, and/or structural conditions at the time of the accident need to be established. Also, any damage that occurred during the accident sequence should be described.

A vehicle, piece of equipment, structure, or component or part should be considered to have failed or malfunctioned if it: (1) becomes completely inoperable; (2) is still operable but no longer able to perform its intended function satisfactorily; or (3) has deteriorated to the point where it is unreliable or unsafe for continued use. Note, however, that none of these conditions are met if it is the result of exceeding the design capability or operating limits of the item in question.

The success of a material failure/malfunction evaluation is dependent upon determining the difference between failures that may have caused the accident and damage caused by the accident. The approach to identifying material failures is usually not as difficult as it may appear. The procedures to be followed are generally the same for all accidents, regardless of damage. The first step in identifying material failures/malfunctions is to document the most obvious evidence available at the accident site by taking notes and photographs, and by drawing diagrams. Any relevant human factors identified may further indicate the most probable material failures/malfunctions. These possibilities should be carefully examined. Even though the investigation team begins by examining components which most probably failed, this examination is not complete until all major components and systems have been examined for evidence of failure. In cases where preliminary evidence (e.g., personnel statements) indicates that no failures/malfunctions occurred, the examination is still recommended. The purpose of the examination in this case would be to describe damage along with substantiating the lack of evidence supporting a failure.

Once the investigation team has identified or at least suspects a failure/malfunction, it must continue the search for evidence of the cause of failure. For example, could the lack of maintenance have caused a failure of this part, component, or system? To answer questions like this, the investigation team must examine maintenance records and operation logs and evaluate any human factors which may have resulted in the material failure.

Components which the investigation team has identified or suspects as having failed may need to be shipped to an analysis facility. This type of analysis is important where the

investigation team may not have the capability to determine why a component failed. Technical Support should be utilized whenever possible for these evaluations because it has the capability to conduct most analyses that may be required.

In some cases, however, it may be necessary and advisable to contact the equipment manufacturer for assistance in making determinations relative to vehicle and/or equipment failures/malfunctions.

8. **Violations**: Orders or citations shall be issued for apparent and existing violations, based on the investigators' judgement. Unless conditions which caused the accident have been eliminated prior to the arrival of the investigators, immediate action shall be instituted to eliminate the hazardous conditions and to prevent injury to other employees.

9. **Close-out Conference**: At the conclusion of the accident investigation, a close-out conference shall be held with both management and labor to announce the actions and findings of the investigation and to make preliminary recommendations.

E. Procedures for the Collection of Evidence

Accident sites shall be measured, sketched and photographed in as close to the original condition as possible. If the site has been disturbed, the manner in which it has been disturbed, including by whom, when, and why, must be noted.

One member of the investigation team must be assigned the responsibility of collecting, marking, and maintaining the chain of custody of physical and documentary evidence obtained during the investigation. Collection of physical evidence (such as equipment, timbers, roof bolts, pre-shift books, etc.) should be taken according to the following guidelines. Each item must be marked identifying the item and include the initials of the investigator, and the date, time and place of collection. A receipt shall be given for each item taken. After removal from the site, the evidence shall be secured in an MSHA office and shall not be removed except for examination, analysis, or for use in a hearing or trial. Records shall be kept of the date, time, and purpose of each removal as well as the name of the person who removed it. Should the mine operator refuse to release any items or evidence, the matter should be referred to the District Manager for referral to the Administrator. (Some states have seizure rights; therefore, cooperation between MSHA and State officials in the above matters is imperative.)

Examination and analysis should, when possible, be made within MSHA or through arrangement with another Federal agency. The results of any examination of items by a manufacturer or by an independent laboratory must not be returned to the mine operator or his/her agent without prior written approval of the Administrator.

The authority of MSHA to search sites and to remove evidence extends only to mines as defined in Section 3(h) of the Mine Act. Any question as to whether a site can be searched and evidence removed shall be referred through the District Manager to the Administrator. The Administrator, in consultation with the Associate Solicitor for Mine Safety and Health, will act on the matter appropriately.

A master log of all items collected shall be maintained as part of the Accident Investigation File. The file and all evidence collected shall be secured and stored under lock and key under the direct control of the investigation team leader or designee. Where returnable items are collected during the investigation, such as equipment, a chain of custody must be maintained from the time the evidence is collected until authorization is given for the evidence to be returned to the operator.

F. Public Hearings

When a public hearing is deemed necessary, it shall be convened at a time and place appropriate to the circumstances. Such time and place shall be published by notice in the Federal Register. At least one week prior to the hearing, the operator of the mine, the representative of the miners, the responsible State agency, and such other persons as the Administrator deems appropriate, shall be notified in writing of the time and place of the public hearing. The hearing shall be under the direction of the Administrator, in consultation with the Associate Solicitor for Mine Safety and Health, so that the hearing may be governed in the manner necessary to serve the purpose for which it was requested.

The following general rules shall apply:

1. All witnesses, whether subpoenaed or appearing voluntarily, shall be sworn and advised of their legal rights with regard to the giving of testimony.

2. All persons having information relevant to the investigation, as established by the preliminary questioning, shall be given an opportunity to testify.

3. A transcript of the hearing shall be made by a court reporter and shall be made available to the public.

4. The hearing shall be open to the public. No tape recorders, television cameras or other photographic equipment shall be permitted in the hearing room without the approval of the Administrator.

5. When circumstances warrant, further procedural rules applicable to the hearing may be issued prior to and/or during the hearing.

G. Analysis of Data

The analysis function is an ongoing requirement throughout the data collection phase of the accident investigation. It is the most important part of the investigation because the conclusions derived from the analysis will become the basis for developing findings and recommendations. Accordingly, the analysis should be thorough, but more important, it should be goal oriented; e.g., it should primarily focus on determining why the accident occurred. This goal should drive the analytical effort throughout the investigation so that findings and recommendations having the best potential for preventing similar occurrences can be developed.

During the analysis of data collected, all witness statements should be subjected to evaluation, since a witness may be honestly mistaken about actions taken or observations made. Often, witness statements are numerous, complex, or contradictory. This requires good judgement on the part of the investigators when considering the credibility of individual witnesses.

H. Credibility

The conclusions resulting from the analysis of all data should be fully supported by evidence whether it be direct, circumstantial, or a combination of both. When there is substantial credible information available, the analysis task is not complicated. Evidence that is substantive in nature can be analyzed using a simple cause and effect process. Conversely, a lack of evidence will make the analytical task more difficult. In this case, it may become necessary for the investigation team to develop hypothetical explanations of what may have caused the accident. After thoroughly discussing these possible explanations, an evaluation of whether or not they are supported by evidence must be made. Then, through a process of elimination, the most

probable cause(s) can be established. In either case, evidence plentiful or minimal, the main purpose of the analysis is the same, to explain why the accident occurred.

I. Preparation of Report

Promptly after the investigation is completed, a report shall be written as described in this handbook under the direction of the District Manager or the Administrator, whichever is appropriate.

WRITTEN REPORT

Report of Investigation

In the event that an investigation of an accident or other occurrence at a mine is prolonged, interim reports shall be prepared when requested by the Administrator. These and final reports shall be prepared in the following manner:

1. The report covering the investigation shall be prepared and submitted to the District Manager or Administrator for approval, whichever is appropriate, within 45 days following the date of the accident.

2. After approval, the original report and a distribution list for the district in which the accident occurred shall be submitted to the National Mine Health and Safety Academy, Support Services Branch, for printing and distribution.

3. The report shall include maps, photographs, and other illustrations necessary to present a complete story of the matter investigated. The original maps and/or illustrations shall be prepared in a manner that will allow for suitable copies to be made, if necessary.

    a. Important and necessary data referred to in the report shall be shown on the maps, photographs and other illustrations to permit a clear understanding of the subject under discussion.

    b. If copies of the maps and illustrations cannot be prepared in the office responsible for conducting the investigation, they may be requisitioned through an MSHA office having the necessary facilities.

Guidelines for the Construction of a Report of Investigation

The following report format may, at times, present problems as to where to put certain factual material peculiar to a specific investigation. No format can be devised to completely avoid these contingencies, and they can be handled without unduly compromising the format or quality of the report.

A cover page, as illustrated in this handbook, shall cover each report. A title page shall follow the cover page; and an appropriate sketch or photograph of the accident scene, etc., sufficient to clarify the abstract, shall be displayed on the reverse side of the title page of each report. When more than one sketch, photograph or illustration is needed in a report, the additional sketches, etc., shall appear in the report appendix.

The Abstract of Investigation form is illustrated in this handbook. It shall be the first page (the page following the title page) of all reports. All items on the abstract form shall be completed. Items which are not applicable or pertinent to the investigation shall be answered by inserting the symbol "N/A" in the correct space. This symbol shall be used only after due consideration of all factors involved and shall not be used as a means of disposing of items for which information is merely difficult to obtain.

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

District _____

Accident Investigation Report
(Underground Coal/Metal Mine)
(Surface of Underground Mine)
(Surface Coal/Metal Mine)
(Preparation Plant/Mill)
(Culm Bank)
(Dredge)
(Central Shop)

Type of Occurrence Investigated

Mine Name (ID Number)
Company
Town, County, State

Date(of occurrence being investigated)

by

Name and title of person(s) who prepared report

Originating Office -- Mine Safety and Health Administration

Address

Name and Title of Official

(Format for **cover page** for accident investigation report)

Accident Investigation Report
(Underground Coal/Metal Mine)
(Surface of Underground Mine)
(Surface Coal/Metal Mine)
(Preparation Plant/Mill)
(Culm Bank)
(Dredge)
(Central Shop)

Type of Occurrence Investigated
Mine Name (ID Number)
Company
Town, County, State

Date (of occurrence being investigated)

Sketch or photograph shall be displayed on back of this page

(Format for **title page** for accident investigation report)

(sample abstract page)

The narrative portion of the report shall follow the abstract page. The narrative portion shall consist of the following:

1. Table of Contents (necessary in a report of ten or more pages)
2. General Information
3. Description of Accident
4. Physical Factors Involved
5. Conclusion
6. Violations
7. Appendix
   a. List of persons who were present during the investigation;
   b. Additional sketches and photographs;
   c. Charts, tables, illustrations, and maps;
   d. Victim data sheets; and,
   e. Test results

The following is a detailed description of the above:

General Information

Information contained in this section of the report would include the mine name, company name, and the location of the mine. A brief history of the operation, including the work schedule (shifts per day, days per week), and any other information pertinent to the accident and investigation. For example, ground control methods should be described in roof fall or fall-of-ground accident reports. Principal officials of the operation would be listed, including those of any contractors involved. Specific details relative to the type of operation, size, production, employment, and mining methods would be addressed. Include the date of the last regular health and safety inspection.

Description of Accident

The description of the accident shall be a detailed narrative reconstructed from witnesses' testimony and actual observations of the accident scene, whenever possible. This portion of the report would give a chronological account of the activities of all persons involved in the accident. In most cases, this section would begin with the start of the work shift during which the accident occurred. However, where activities on previous work shifts are pertinent to the accident, they would also be included. Instructions given to the victim(s) and other persons directly involved in the accident and the names of persons giving

these instructions would also be included. This section should clearly describe how the accident occurred.

Physical Factors Involved

This section would be an extension of the General Information section and shall be used to describe equipment and conditions or locations pertinent to the accident. The primary purpose of this section is to isolate physical data essential to the investigation, the absence of which may otherwise detract from the description of the accident.

Conclusion

This section of the report shall present a condensed analysis of the facts, conditions, and circumstances as described in the report. In accident reports, the conclusion should disclose the probable cause of the accident. Indirect causes or contributing factors should be stated briefly. The actions or lack of actions by management, labor, the victim, or anyone else shall be identified and factually supported.

Violations

This section, while not necessary in all investigation reports, shall outline all violations of the regulations, including reference to the section numbers and the citation and order numbers, that either caused or contributed to the accident under investigation. A brief description of the condition or practice cited, and the area of the mine or facility involved must also be given.

Citations or orders pertaining to mandatory standard violations unrelated to the accident shall not be listed in the formal accident report, but should be issued separately as part of a regular or spot inspection.

Signatures

The report shall be signed by the author(s) and by the District Manager or Administrator when approved.

Report Appendix

The Appendix shall contain the following parts, if applicable:

1. **List of Persons Present During the Investigation** - This listing shall be grouped by company or agency, giving the

name and title of each person present during the investigation.

2. **Sketches and/or Photographs** - Additional sketches and/or photographs necessary to clarify the report shall be included.

3. **Charts, Tables, Illustrations, and Maps** - These shall be included when necessary to fulfill the informational requirements of the report.

4. **Data Sheet(s)** - The victim data sheet, as illustrated in this handbook, shall be included in all reports where there are injuries. A separate sheet shall be completed for each person injured.

5. **Test Results** - The results of any tests of equipment made in conjunction with the investigation shall be included in all reports where such tests or evaluations are made.

ACCIDENT INVESTIGATION FILE

It is vitally important that persons are designated to collect and maintain records of all information, activities, evidence, samples, etc., to authenticate the material gathered during the investigation. All information collected shall be forwarded to the designated person for safe keeping and evaluation. This information will be compiled into an Accident Investigation File to support the investigation conclusions.

A fundamental and important task of the investigation team is to gather facts which may be used as evidence in determining the cause of the accident. Consequently, the team must collect all available evidence, know the various types and forms of evidence, when and how it should be gathered, and how it must be transferred, stored, and recorded. Every piece of evidence that could have any connection with the incident should be collected. Physical evidence taken into custody must be connected to the location from which it was taken through the use of custody tags, photographs, sketches, notes, and/or oral or written testimony. Each item collected must be marked, labeled, or its physical characteristics recorded in such a manner that it can later be positively identified. The identification markings must be permanent in nature. The date, time, specific location where the evidence was found, and other appropriate descriptive information, should be recorded on the custody tag and in the investigators handwritten notes. Where appropriate, a chain of custody for items of evidence shall be established and

maintained. A receipt shall be given for each item taken (this does not include copies of maps or records). Should the mine operator refuse to release any item or evidence, the matter should be promptly referred to the District Manager or Administrator, whichever is appropriate.

RESCUE AND RECOVERY PROCEDURES

Coordination of Operations

In most cases, rescue and recovery operations are the responsibility of mine management. However, if it is deemed necessary for MSHA to assume these responsibilities, the appropriate order(s) shall be issued, and the procedures addressed below shall be followed.

To the extent possible, the MSHA rescue and recovery operations shall be coordinated with any such operations conducted by State agencies. Representatives of the company, the mine workers and the county coroner, where applicable, shall be afforded an opportunity to participate in and be informed of such operations as may be appropriate under the circumstances. Such coordination and participation should be encouraged, but shall not be permitted to interfere with the performance of the rescue and recovery operations in a manner that will prevent MSHA from fulfilling its responsibilities.

CMS&H has designated certain responsibilities relative to rescue and recovery operations for its District Managers. In the event of a major accident, where rescue and recovery operations are required, two District Managers, or their designees, are to be automatically dispatched to the accident site unless otherwise notified by the Administrator. These District Managers will assist the local District Manager in the rescue and recovery operations and will provide support personnel as needed and requested. These assignments will be made based on the predetermined selections listed in the Appendix.

Initial Procedures

The following actions, if applicable, shall be coordinated by MSHA during the initial rescue and recovery operations:

1. Guard mine entrances and fans to prevent unauthorized entry and tampering;

2. Determine the condition of the mine ventilation system and restore it, if necessary;

3. Deenergize underground power, if necessary;

4. Determine condition of underground communication system, and communicate with any entrapped miners, if possible;

5. Inventory firefighting equipment, mine rescue equipment, and personnel. Obtain additional equipment and/or personnel, if needed;

6. Establish check-in and check-out system for rescue and recovery workers;

7. Secure an up-to-date mine map and arrange for necessary copies thereof;

8. Issue appropriate order under the provisions of Section 103 of the Mine Act;

9. Block off the affected area of mine property to hold back curiosity seekers and other persons whose services are not needed in the rescue and recovery operations;

10. Where an imminent danger is found to exist, issue a Section 107(a) Order of Withdrawal promptly. In some cases, more than one order may be required; and

11. Send mine rescue team with necessary protective equipment and testing devices as far as safely possible in an effort to reach entrapped miners and to observe conditions in the mine.

Supplementary Procedures

Upon completion of the rescue and recovery operations as outlined heretofore, and as further information becomes available, the following actions shall be taken, if applicable:

1. Establish an organization which will coordinate the efforts of MSHA with those of the State, company, and miners' representatives. In some areas, the county coroner may be included as a participant;

2. Inventory all equipment in the affected area of the mine to determine whether such equipment poses a potential hazard to rescue and recovery operations;

3. Obtain State and local police support, if needed;

4. Establish an MSHA office at the mine adequately equipped to provide a base of operations for the work and for communicating with the MSHA offices in Arlington;

5. Designate an MSHA employee to keep a comprehensive record of all activities and to maintain communications with the Office of the Administrator in Arlington. Particular emphasis should be directed toward recording the participants in various activities and obtaining the surnames of non-MSHA personnel;

6. Obtain additional mine rescue and firefighting equipment and personnel, if needed;

7. Obtain MSHA rescue rigs, communication equipment and personnel, as needed;

8. Prepare first-aid facilities to handle survivors and a temporary morgue for receiving bodies, if needed;

9. Assist in firefighting and other rescue and recovery activities, maintaining surveillance and control at all times, to assure that such activities are conducted safely;

10. When rescue and recovery operations and the initial investigation are completed, the affected area(s) of the mine shall be inspected, including the issuance of appropriate citations and orders pursuant to Section 104 and 107 of the Mine Act, to ascertain that it is safe and in full compliance with Federal regulations;

11. During the rescue and recovery operations, the location and identification of each body shall be marked in the mine before the body is removed; and

12. Thereafter, the locations so marked in the mine shall be recorded on a mine map. If it is necessary to remove equipment, its original location shall be marked and the position of its operating controls shall be noted. All pertinent information shall be logged during the investigation and made a part of the subsequent accident report. As appropriate, chains of custody for evidence shall be established.

APPENDIX

- Preliminary Report of Accident
- Abstract of Investigation
- Victim Data Sheet
- Interviewing Techniques
- Accident/Injury Classifications
- Chargeability Report Outline
- CMS&H District Manager Assignments for Rescue and Recovery Operations

Preliminary Report of Accident

U.S. Department of Labor
Mine Safety and Health Administration

1. Accident Type	2. Accident Classification	3. Date/Time of Accident ❑ a.m. ❑ p.m.	4. Date/Time of Death ❑ a.m. ❑ p.m.	5. Fatal Case No.

6. Mine Information: a) Mining Company Name b) Mine Name c) Parent of Mining Company

7. Mine Location Information: a) City	b) County	c) State	8. Mine ID Number	9. Union ❑ yes ❑ no

10. Primary Mineral Mined	11. Number of Employees: a) Total	b) Underground	c) Open Pit or Quarry	d) Mill/Prep. Plant	e) Other

12. Contractor Name	13." Union ❑ yes ❑ no	'14. Contractor ID Number

15., Contractor Address: a) City/Town b) County c) State d) Zip Code

16. Number of Contractor Employees; a) Total b) Underground c) Open Pit or Quarry d) Mill/Prep. Plant e) Other

17. Number of Persons in Mine at Time of Accident:	18. Number of Persons Unaccounted For:
a) Mine Employees _____ b) Contractor Employees _____	a) Mine Employees _____ b) Contractor Employees _____

19. Mark code which best describes where accident occurred.

❑ 01-Underground ❑ 03-Open Pit Mine ❑ 07-Advance Mining ❑ 30-Mill/Prep Plant ❑ Other (specify) _____

❑ 02-Surface at Underground ❑ 06-Dredge Mining ❑ 08-Retreat Mining ❑ 99-Office Facility

20. Mining Height

21. Number of Nonfatal Injuries or Illnesses	22. Number of Fatal Injuries	23. Victim Information: a) Name	b) Age	'c) SSN (last 4 digits)

d) Regular Job Title (e) Activity at time of Accident f) ❑ Mine Employee ❑ Contractor Employee

24. Mining Experience: (a) Total Experience (b) Experience at the Mine (c) Experience at the Activity at the time of the Accident (d) Experience with Contractor

25. Autopsy Performed ❑ Yes ❑ NO	If Yes, Location	26. Next of Kin	No. of Dependents	27. Notifying Mine Person	Telephone No.

28. Description of Accident: (Include equipment involved, the exact location in mine of fatality, and status of rescue and recovery operations, if appropriate. (if additional space is needed. use reverse side of form)

(continued on reverse) . 1

29. Equipment Manufacturer	30. Model

31. District	32. Subdistrict	33. Field Office	34. Event Number

35. Accident Investigator	36. MSHA Person Notified	Date	Time ❑ a.m. ❑ p.m.

37. ❑ (a) Initial Report ❑ (b) Amended Report	38. Signature	Title	Date

39. Reason for Amendment:

INTERVIEWING TECHNIQUES

The unplanned interview tends to be a spontaneous give-and-take between two people. Therefore, it is necessary to systematically plan the interview beforehand. Initial questioning should focus on general areas rather than relying on a prepared list of questions that can be answered by a yes or no. The areas into which the interviewer should plan to direct the inquiry will be determined by the purpose of the interview. Area planning has the following advantages in addition to eliminating the tendency of the person being interviewed to answer yes or no:

1. **It allows the witness to do most of the talking.**

2. **It permits the witness to elaborate on pertinent details that a planned list of questions may fail to elicit.**

3. **The interview is less formal and rigid.**

The interviewer should have the person being interviewed do most of the talking. One method for keeping a witness talking without a direct question from the interviewer is the pause. The pause is best employed following an assertion by the witness. Research has shown that pauses as long as 10 to 40 seconds may be used effectively.

Taking copious notes during an interview can intimidate a witness, interfere with the flow of information and add to the length of the interview. This can be handled in one of two ways. After obtaining the witness' consent, the interview should be tape recorded and the witness statement transcribed later. However, where the witness does not agree to being tape recorded, other members of the investigation team should take notes. This frees the interviewer of this responsibility and allows for better concentration during the interview.

When a witness' statement is tape recorded, there are a few items to keep in mind. Although the first few minutes of a taped interview may make the person being interviewed feel "on the spot" or awkward, experience has shown that this is a transient condition and the remainder of the interview will be as candid as if unrecorded. If a tape recorder is used as the sole means of recording a witness statement, the interviewer should take a few precautions to guarantee that the interview will be recorded clearly and completely.

1. **The person operating the tape recorder should become familiar with and test the recording equipment before the interview. If the recording unit must be operated on its internal batteries, replace the batteries with fresh ones before the interview.**

2. **Environmental noise such as mine fans or equipment operating nearby or windy conditions when a recording is made outdoors may seriously impair the understandability and clearness of what is being said by the interviewer and witness. Therefore, it is preferred that interviews be conducted at locations free of this kind of distraction.**

3. **If a mini-recorder or a short recording time tape is used, determine if the unit has an end-of-tape warning device. Otherwise, the tape can run out unnoticed, thereby not recording information that may be essential.**

4. **When several witness statements are taken via tape recorder, the interviewer will find it useful to begin each recording by taping the information necessary to identify each witness. In addition to allowing for the proper identification of witnesses, this allows each witness time to relax in the presence of the recorder.**

Witnesses should be encouraged to speak of matters of which they have personal knowledge; i.e., what the witness saw or heard, not what he or she may have heard other witnesses say they saw or heard. However, the later type of information may be useful in helping to identify other persons to interview or other areas to investigate.

Witnesses should be encouraged to tell, in their own words, all they know about the accident. Do not attempt to lead the witness.

While witnesses are talking, they should not be interrupted except to prevent them from going too far into irrelevant matters.

After a witness has finished, questions should be put to the witness to clarify doubtful points which may arise during his or her statement. Questions should not be phrased in such a manner as to suggest the answer.

The use of highly technical terms should be avoided when asking questions of a witness who may have no knowledge of the terms.

A witness should be treated with the utmost courtesy at all times and any semblance of coercion avoided.

A witness may be able to express a statement better by sketches than words. Such sketches are acceptable as clarification of evidence.

Whenever a witness refers to maps or photographs, each should be specifically identified in his or her statement. The points mentioned should also be cross-referenced on the map or photograph.

A witness may be able to give a clearer statement if interviewed in the same location from which he or she observed the accident.

Techniques for interviewing witnesses injured and hospitalized because of their involvement in an accident are, for the most part, the same as those just discussed. However, there are a few special considerations.

1. **The medical facility admitting and treating the injured survivors of an accident is responsible for their well-being. Therefore, interviews with injured witnesses while they are in an inpatient status will be coordinated with the medical facility and attending physician(s) so as not to conflict with the injured witness' medical needs.**

2. **Timeliness in interviewing hospitalized witnesses, though desired, is not an overwhelming requirement. There are cases, however, where the nature and/or degree of injuries involved may require subsequent evacuation of an injured key witness to another medical facility far removed from where the investigation is being conducted. If this happens before the witness is interviewed, it may be necessary to have a team member conduct the interview(s) at the other medical facility later. If this is not feasible, then it may be possible to solicit the services of a trained investigator who is stationed near the other medical facility to conduct the interview(s). In such a case, the investigation team would prepare a list of questions relative**

to the areas to be covered with each witness and work through the local District Manager in obtaining the services of a local accident investigator.

3. The team leader is the logical person to represent the team when it is necessary to interview personnel hospitalized because of their involvement in the accident. In this case it may be better to prepare questions in advance. They should be tailored to obtain responses essential to the investigation. In cases where the person being interviewed is giving testimony while under the influence of medications, it will be necessary to qualify the credibility of information obtained under these circumstances. Two or three short interviews with certain injured witnesses may be more beneficial and have less negative effect on their emotional state than one lengthy session. Each case should be handled on the basis of its own circumstances. In any case, the well-being of the witness is paramount at all times and will govern the investigation team's conduct of this type of interview.

4. It is not unusual for an injured survivor of a severe and/or fatal accident to not be able to initially recall details of the accident that would be useful to the investigation team. The cause of this condition is usually temporary and medically valid, and the inability of the witness to recall details should never be interpreted as a lack of cooperation. Patience and empathy on the part of the interviewer under these circumstances may eventually result in obtaining the desired information whereas persistence and impatience may not.

Introductory Statement of MSHA Investigators

A statement similar to the following should be read into the record at the start of the interview(s):

> Let me introduce myself. I am _____ with the Mine Safety and Health Administration (Introduce other team members if participating in the interview). MSHA is conducting this investigation for the safety of the miners and for the purpose of gathering information to be used in determining the cause or causes of the accident so that appropriate steps can be taken to prevent a similar occurrence. To fulfill this purpose, it is necessary to determine the pertinent physical conditions in the mine and any personal acts that led to the occurrence. It is not a function of this investigating team to determine legal culpability, but to produce a factual and informative report regarding the accident. In addition, the investigation must identify unsafe acts and any person who failed to take reasonable preventive or precautionary measures, especially if the actions were in violation of Federal laws or regulations. Others present during this investigation include the (State Agency). [The representatives of the miners and mine management normally will not be present, but see page 17 for additional information on this subject.] (Also recognize any other agencies present.) (Allow the other agencies to make opening remarks at this time.)
>
> We believe that the following persons have information relevant to this investigation and we would like to interview these persons, preferably in the following order. (Ask each person individually if they are appearing voluntarily and if their statement can be recorded.) We would appreciate your statements. However, you have the right to stop at any time you desire during this interview.
>
> As a matter of courtesy and for the purpose of maintaining this investigation strictly relevant to the accident, one person from each agency represented has been selected to ask the questions. I, _____, will ask the questions for MSHA; and _____will ask the questions for the State. [If a representative of the miners and/or the operator is participating as provided on page 17, they shall also be named at this point.]
>
> It has further been decided that all interviewees with the exception of _____ (The first person to be interviewed) will leave this room to an assigned area until you are called to give your statement. I might remind you to please refrain from discussing the accident among yourselves.

At this time, the first witness should be placed in the location selected for his or her interview, and the MSHA interviewer should start his or her questions.

Open the interview by having the person being interviewed state his or her name, address and home phone number. Also request the job title, mining experience, and experience on their present job. Then have the interviewee describe his or her activities from the start of the shift on the day of the accident with a detailed account of the events leading up to the accident itself.

Prior to further questioning by other interviewers, have the interviewers state their name and who they represent. Give each representative an opportunity to ask questions. Make every effort to eliminate repetitive questions and/or questions that are not related to the occurrence being investigated. Do not hesitate to control the interview.

Concluding Statement of MSHA Investigators

After each witness has been interviewed, a statement similar to the following should be made:

> On behalf of the Mine Safety and Health Administration, U.S. Department of Labor, and the (Name of the State agency), I would like to thank Mr._____ for voluntarily appearing today.
>
> Also, I would like to request Mr. _____, that you refrain from discussing your statement with any other persons who have been or may be asked to give a statement in connection with this accident since we would like to obtain everyone's independent recollection. Should you wish to give any additional information to MSHA or the (Name of the State agency) in regard to this accident, you should contact us. I reserve the right to return and ask clarifying questions at a later date.
>
> Thank you for your cooperation.

After each witness has been interviewed, ask the witness if he or she knows of any additional persons who may have information relevant to the accident. The decision to interview any person identified is up to the investigation team. However, as a matter of courtesy, you should inform the other representatives of your decision.

As MSHA's representative, you are to request a copy of the operator's investigative report along with copies of the certificate of death and autopsy report, if an autopsy was preformed. In addition, any other company reports regarding the accident should be obtained (i.e., Superintendent's Report, Foreman's Report, Company Report of Personal Injury, etc.). If the operator has not yet completed its accident investigative report, request that a copy be submitted as soon as possible.

When a representative of the miners and/or the mine operator has participated in the questioning of witnesses and all pertinent physical observations and evidence have been collected and thoroughly evaluated, MSHA's investigation team leader should recommend that the meeting be suspended for a short time. This will allow each group's representatives to meet to discuss the investigation findings, causes, and violations observed. When the meeting is reopened by the MSHA team leader, he or she should allow mine management the opportunity to discuss the accident, their findings and any recommendations to prevent a reoccurrence. If the operator is not prepared to give recommendations, arrange to obtain them at a later time.

Afford the other parties, if any, the opportunity to also make closing statements. However, control the time as much as possible and assure that the statements are kept relevant to the accident investigation.

The team leader then should announce that the interview session is closed. However, it must also be stated that the investigation will remain open until all information has been evaluated and a written report submitted. If further evidence is needed, the team leader should set a reasonable date to reconvene. All persons in attendance should be thanked for their cooperation.

ACCIDENT/INJURY CLASSIFICATIONS

The following procedure is to be used when classifying accidents. Remember that it is the accident that you are classifying. The accident classification identifies the circumstances which contributed most directly to the resulting accident. The accident may or may not be directly tied to any resulting injury. For that reason, you must not associate the classification decision predicated on any injury that may have resulted. Keep the concepts of accident and injury clear and distinct in your mind as separate things.

The classifications are listed in alphabetical order:

ELECTRICAL - Accidents in which electric current is most directly responsible for the resulting accident.

ENTRAPMENT - In accidents involving no injuries, or nonfatal injuries which are not serious, entrapment of mine workers takes precedence over roof falls, explosives accidents, inundations, etc., if a roof fall results in an entrapment accident, show the report accident classification as "Entrapment".

EXPLOSION OF VESSELS UNDER PRESSURE - These are accidents caused by explosion of air hoses, air tanks, hydraulic lines, hydraulic hoses, and other accidents precipitated by exploding vessels.

EXPLOSIVES AND BREAKING AGENTS - Accidents involving the detonation of manufactured explosives, Airdox, or Cardox, that can cause flying debris, concussive forces, or fumes.

FALLING, ROLLING, OR SLIDING ROCK OR MATERIAL OF ANY KIND -Injuries caused directly by falling material require great care in classification. Remember that it is the accident that we want to classify. If material was set in motion by machinery, haulage equipment, or handtools, or while material is being handled or disturbed, etc., charge the force that set the material in motion. For example, where a rock was pushed over a highwall by a dozer and the rock hit another rock which struck and injured a worker - charge the accident to the dozer. Charge the accident to that which most directly caused the resulting accident. Without the dozer, there would have been no resulting accident. This includes accidents caused by improper blocking of equipment under repair or inspection.

FALL OF FACE, RIB, SIDE OR HIGHWALL - Accidents in this classification include falls of material (from in-place) while barring down or placing props, also pressure bumps and bursts. Since pressure bumps and bursts which cause accidents are infrequent, they are not given a separate category. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such accidents are classified as machinery or haulage, whichever is appropriate.

FALL OF ROOF OR BACK - Underground accidents which include falls while barring down or placing props, also pressure bumps and bursts. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such falls are classified as machinery or haulage, whichever is appropriate.

FIRE - An unplanned mine fire not extinguished within 30 minutes of discovery. Fires of shorter duration may be responsible for reportable injuries. In those cases, the fire would still be the cause of the accident. Not included are fires initiated by electricity or by explosion of gas or dust.

HANDLING MATERIAL - (Lifting, pulling, pushing, shoveling material.) The material may be in bags, boxes, or loose sand, coal, rock, timber, etc. The accident must have been most directly caused by handling material.

HANDTOOLS - Accidents related to nonpowered tools when being used as handtools. Do not include electric tools or air-powered tools.

NONPOWERED HAULAGE - Accidents related to motion of nonpowered haulage equipment. Included are accidents involving wheelbarrows, manually pushed mine cars and trucks, etc.

POWERED HAULAGE - Haulage includes motors and rail cars, conveyors, belt feeders, longwall conveyors, bucket elevators, vertical manlifts, self-loading scrapers or pans, shuttle cars, haulage trucks, front-end loaders, load-haul-dumps, CAVO, forklifts, cherry pickers, mobile cranes if traveling with a load, etc. The accident is caused by the motion of the haulage unit. Include accidents that are caused by an energized or moving unit or failure of component parts. A car dropper who suffers an injury as a result of falling from a moving car - charge the accident to haulage.

HOISTING - Damage to hoisting equipment in a shaft or slope which endangers an individual or which interferes with use of the equipment for more than 30 minutes. Hoisting may also be the classification where a victim was injured by hoisting equipment but there was no damage to the equipment. Accidents involving cages, skips, buckets, or elevators. The accident results from the action, motion, or failure of the hoisting equipment or mechanism. Included are equipment such as derricks and cranes only when used in shaft sinking; also, suspended work platforms in shafts and mine cars being lowered or raised by hoisting equipment on slopes or inclines. A skip squeezed between timbers resulting in an accident is charged to hoisting. An ore bucket tipped for any reason causing an accident is also charged to hoisting.

IGNITION OR EXPLOSION OF GAS OR DUST - Accidents resulting as a consequence of the ignition or explosion of gas or dust. Included are exploding gasoline vapors, space heaters, or furnaces. (Note: An "ignition" is defined as a smaller explosion that results in no or only minor physical damage.)

IMPOUNDMENT - An unstable condition at an impoundment, refuse pile, or culm bank which requires emergency action in order to prevent failure, or which causes individuals to evacuate an area. Also the failure of an impoundment, refuse pile, or culm bank.

INUNDATION - An unplanned inundation of a mine by a liquid or gas. The mine may be either a surface or underground operation.

MACHINERY - Accidents that result from the action or motion of machinery or from failure of component parts. Included are all electric and air-powered tools and mining machinery such as drills, tuggers, slushers, draglines, power shovels, loading machines,

compressors, etc. Include derricks and cranes except when they are used in shaft sinking (see "HOISTING") or mobile cranes traveling with a load (see "POWERED HAULAGE").

SLIP OR FALL OF PERSON - Includes slips or falls from an elevated position or at the same level while getting on or off machinery or haulage equipment that is not moving. Also includes slips or falls while servicing or repairing equipment or machinery. Includes stepping in a hole.

STEPPING OR KNEELING ON OBJECT - Accidents are classified in this category only where the object stepped or kneeled on contributed most directly to the accident.

STRIKING OR BUMPING - This classification is restricted to those accidents in which an individual, while moving about, strikes or bumps an object but is not handling material, using handtools, or operating equipment.

OTHER - Accidents not elsewhere classified. This is a last resort category.

CODE	DESCRIPTION
26	Occupational skin diseases or disorders (contact dermatitis, eczema, or rash caused by primary irritants and sensitizers or poisonous plants; oil acne; chrome ulcers; chemical burns or inflammations).
27	Dust disease of the lungs (pneumoconioses: silicosis, asbestosis, coal worker's pneumoconiosis, etc.).
28	Respiratory conditions due to toxic agents (pneumonitis, pharyngitis, rhinitis, or acute congestion due to chemicals, dusts, gases, or fumes).
29	Poisoning. Systemic effects of toxic materials (poisoning by lead, mercury, cadmium arsenic, or other metals, poisoning by carbon monoxide, hydrogen sulfide or other gases; poisoning by benzol, carbon tetrachloride, or other organic solvents; poisoning by insecticide sprays such as parathion, lead arsenate; poisoning by other chemicals such as formaldehyde, plastics and resins).
30	Disorders due to physical agents other than toxic materials. (Heatstroke, sunstroke, heat exhaustion and other effects of environmental heat; freezing, frostbite and effects of exposure to low temperatures; caisson disease; effects of ionizing radiation [radon daughters, non-medical, non-therapeutic x-rays, radium]; effects of non-ionizing radiation [welding flash, ultra-violet rays, micro-waves, sunburns].)
31	Disorders associated with repeated trauma (noise induced hearing loss, synovitis, tenosynovitis and bursitis, Raynaud's phenomena and other conditions due to repeated motion, vibrations or pressure).
32	All other occupational illnesses. (Infectious hepatitis, malignant and benign tumors, and any form of cancer, kidney diseases, food poisoning, histoplasmosis.)

DEATHS REQUIRING A DECISION BY THE FATALITY REVIEW COMMITTEE

When it is determined by the District Manager that an accident involves circumstances that warrant a decision by the Fatality Review Committee, the following memorandum report format should be followed:

1. **The memorandum should be written from the investigator to the appropriate District Manager where it will be forwarded to the Administrator with a cover memorandum stating the District Manager's determination of whether or not the death is mining related. After a review by the Administrator, the information will be transmitted to the Chief, Denver Safety and Health Technology Center, for distribution to the Fatality Review Committee.**

2. **The subject of the memorandum should be: Investigation of Death at Company Name, Mine Name, I.D. Number, location (including the county and state), and date of the accident.**

3. **Give the victim's name, age, total mining experience, time and date of death, cause of death, and the experience on the job being performed when the accident occurred.**

4. **Names of persons present during the investigation and/or providing information should be listed along with the dates of the investigation.**

5. **Give a narrative description of the activities of the victim prior to the time of the accident starting from the beginning of the shift.**

6. **List the victim's regular occupation and the occupation at the time of the accident. Duties normally performed by the victim in the regular occupation should also be given. Any duty that would not be considered routine should be identified.**

7. **In order that the possibility of overexertion may be evaluated, state distances traveled by the victim, grades negotiated, weights lifted, etc. Specify time intervals between the performance of any arduous tasks by the victim and the time of the accident.**

8. **Environmental factors that may be relevant such as temperature extremes, elevations, noise levels, etc., should be given. This would include the presence of any noxious gases or a lack of sufficient oxygen.**

9. **Obtain the victim's previous medical history, if available. Also, obtain the statement of death from a medical officer including statements indicating that death was aggravated by or the result of tasks performed. If the attending physician will not make such statements, the report should so indicate. Attach copies of death certificates and autopsy reports, when available.**

CMS&H District Manager assignment areas relative to rescue and recovery operations:

CMS&H District Accident Occurred In	CMS&H District Managers Providing Assistance
District No. 1	District No. 2 District No. 3
District No. 2	District No. 1 District No. 3
District No. 3	District No. 1 District No. 2
District No. 4	District No. 6 District No. 9
District No. 5	District No. 4 District No. 6
District No. 6	District No. 4 District No. 5
District No. 7	District No. 5 District No. 10
District No. 8	District No. 7 District No. 10
District No. 9	District No. 7 District No. 8
District No. 10	District No. 8 District No. 9